Appendix H
Initial CHART Assessment for the Ozette Lake Sockeye Salmon ESU

CHART Participants

The CHART for this ESU consisted of the following NOAA Fisheries biologists: DeeAnn Kirkpatrick (CHART Leader), Steve Fransen, Tom Hooper, Mike Parton, and Tim Tynan. Steve Ralph (Environmental Protection Agency) is another federal biologist who served on this CHART.

The following biologists working for NOAA Fisheries provided valuable expertise to the CHART, but were not part of deliberations or the formal scoring/rating process: Bill Graeber (NOAA Fisheries), John Meyers (National Park Service [NPS]), and Tom Sibley (NOAA Fisheries).

ESU Description

The Ozette Lake ESU of sockeye salmon was listed as a threatened species on March 25, 1999 (64 FR 14528). The ESU, one of seven West Coast ESUs identified by NOAA Fisheries, includes all naturally spawned populations of sockeye salmon in Ozette Lake and in streams flowing into Ozette Lake, Washington. The Puget Sound Technical Recovery Team considers the Ozette Lake sockeye ESU to be comprised of one historical population with multiple spawning aggregations.

Migration of adult sockeye salmon (typically 4-year-old fish) up the Ozette River generally occurs from April to early August (WDFW et al. 1993). High water temperatures in the lake and river and low water flows in the summer may create a thermal block to migration and influence timing of the sockeye salmon migration (LaRiviere 1991). Recorded water temperatures in late-July and August in the Ozette River near the lake outlet have exceeded the temperature range over which sockeye salmon are known to migrate (Gustafson et al. 1997).

Disjunct spawning times for fish at different beach spawning sites within the lake suggest that Ozette Lake sockeye may be composed of discrete subpopulations (Dlugokenski et al. 1981). The primary existing spawning aggregations occur in two beach locations—Allen's and Olsen's beaches, and in two tributaries, Umbrella Creek and Big River. Both of the tributary spawning groups were initiated through a hatchery introduction program. Spawning fish are occasionally found in other tributaries and may occur at other beach locations within the lake (Makah Fisheries 2000). The extent to which sockeye spawned historically in tributaries to the lake is controversial (Gustafson et al. 1997), but it is clear

that multiple beach-spawning aggregations of sockeye occurred historically, and that genetically distinct kokanee currently spawn in large numbers in all surveyed lake tributaries (except Umbrella Creek and Big River). During low water levels in summer, much of the available beach spawning habitat may become exposed (Bortleson and Dion 1979).

Eggs and alevins reside beneath fine gravel/cobble generally from 1.3 to 10.2 cm in diameter (Reiser and Bjornn 1979). Incubation is temperature dependent and generally takes as little as 50 days (or less) or more than five months (Hart 1973). After hatching most juveniles spend one winter in Ozette Lake rearing before outmigrating to the ocean as two-year-old fish during April and May (Dlugokenski et al. 1981). Juvenile sockeye feed primarily on plankton and a variety of terrestrial and aquatic insects (Hart 1973, Scott and Crossman 1973). The fish typically spend two years in the northeast Pacific Ocean foraging on zooplankton, squid, and, infrequently, on small fishes (Scott and Crossman 1973).

CHART Area Assessment and Initial Conservation Value Rating

The CHART assessment and initial assessment for this ESU addressed a single unit: the Ozette Lake watershed.

Unit 1. Ozette Lake Subbasin (HUC4# 17100101)

The Ozette Lake subbasin includes a single watershed and is located in Clallam County, Washington, in the northwest corner of the Olympic Peninsula. The watershed encompasses approximately 101 mi^2 and approximately 317 miles of streams; Ozette Lake is a dominant feature of the watershed.

Fish distribution and habitat use type data from the Washington Department of Fish and Wildlife (WDFW) identify approximately 40 miles of occupied riverine/estuarine habitat in this watershed (WDFW 1993). In addition, Ozette Lake covers approximately 12 mi^2 and contains important spawning beaches and rearing areas. The CHART concluded that all of these occupied areas contained PCEs, including spawning beaches, lake and river rearing habitat, and river migration corridors. The CHART noted several corrections to the information regarding distribution of fish and PCEs for this ESU, including recent spawning/rearing range extension in Solberg Creek (J. Meyers, NPS, personal communication). These corrections were discussed with WDFW (B. McTeague, WDFW, personal communication) and were later incorporated into its GIS database (WDFW et al. 2003) for this species/area. Management activities that may affect PCEs in this watershed include, but are not limited to, forestry and introduction of exotic invasive plants. Map H1 depicts the areas occupied by this ESU and under consideration

for critical habitat designation. This watershed supports the one and only population constituting this ESU; therefore, the CHART concluded that this watershed warranted a high conservation value rating.

While the CHART did not identify any unoccupied areas that may be essential for this ESU, they did note that tributary streams near lake spawning beaches may have a major influence on PCEs (e.g., sedimentation and substrate recruitment).

Marine Areas

NOAA Fisheries' analysis focused on freshwater and estuarine habitats upstream of the mouth of the Ozette River. While marine areas are occupied by this ESU, within this vast area the agency has not identified "specific areas within the geographical area occupied by the species . . . on which are found those physical or biological features . . . essential to the conservation of the species."

References and Sources of Information

References cited above as well as key reports and data sets reviewed by the CHART include the following:

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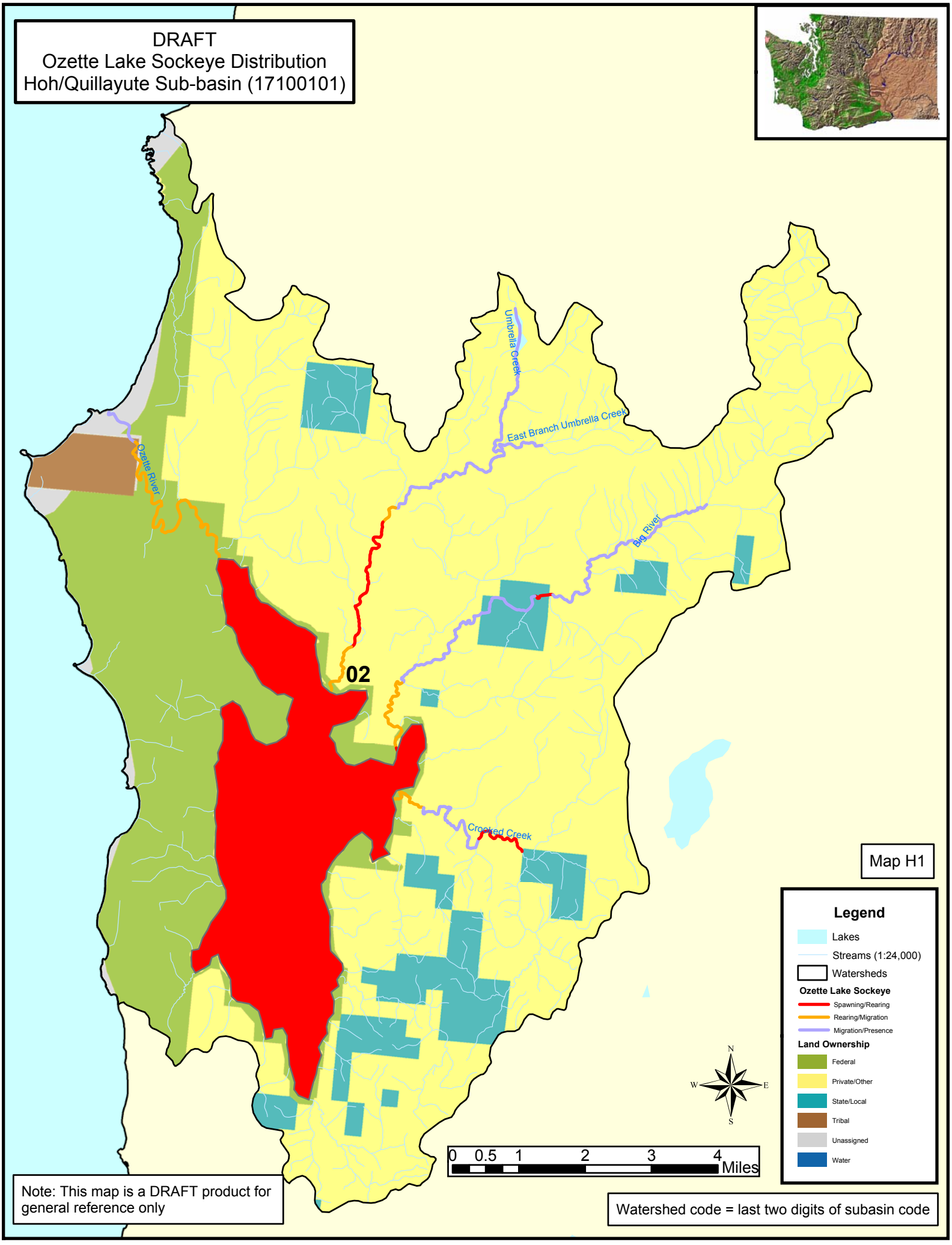
Washington Department of Fish and Wildlife (WDFW) and Western Washington Treaty Indian Tribes (WWTIT). 1993. 1993 Washington State salmon and steelhead stock inventory (SASSI). WDFW, Olympia, WA, 212p.

Washington Department of Fish and Wildlife (WDFW). 2003. "Fishdist: 1:24,000 (24K) and 1:100,000 (100K) Statewide Salmonid Fish Distribution". GIS data layer. (M. Hudson, data manager). Available from Washington Department of Fish and Wildlife, 600 Capitol Way N, Olympia WA 98501-1091.

Map H1. Ozette Lake Sockeye Salmon ESU – Habitat Areas Under Consideration for Critical Habitat Designation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Ozette Lake Sockeye Distribution
Hoh/Quillayute Sub-basin (17100101)
Umbrella Creek
East Branch Umbrella Creek
Ozette River
Big River
Crooked Creek
02
Map H1
Legend
Lakes
Streams (1:24,000)
Watersheds
Ozette Lake Sockeye
Spawning/Rearing
Rearing/Migration
Migration/Presence
Land Ownership
Federal
Private/Other
State/Local
Tribal
Unassigned
Water
N
W
E
S
0 0.5 1 2 3 4 Miles
Note: This map is a DRAFT product for general reference only
Watershed code = last two digits of subasin code